Oil and Natural Gas Systems

Proposed Rule: Mandatory Reporting of Greenhouse Gases

United States Environmental Protection Agency

Under the proposed Mandatory Reporting of Greenhouse Gases (GHGs) rule, owners or operators of oil and natural gas systems (as defined below) that emit 25,000 metric tons of GHGs per year or more (expressed as carbon dioxide equivalents) from stationary combustion, miscellaneous use of carbonates, and other source categories (see information sheet on General Provisions) would report emissions from all source categories for which emission calculation methods are defined in the rule. Owners or operators would collect emission data; calculate GHG emissions; and follow the specified procedures for quality assurance, missing data, recordkeeping, and reporting.

How Is This Source Category Defined?

Under the proposal, this source category consists of the following facilities:

- Offshore petroleum and natural gas production
- Onshore natural gas processing
- Onshore natural gas transmission compression
- Underground natural gas storage
- Liquefied natural gas (LNG) storage
- LNG import and export operations

What GHGs Would Be Reported?

The proposal calls for facilities to report:

- Fugitive carbon dioxide (CO_2) and methane (CH_4) emissions from each of the 24 source types listed in the next section.

In addition, each facility would report GHG emissions for other source categories for which calculation methods are provided in the rule. For example, facilities would report CO_2, nitrous oxide (N_2O), and CH_4 emissions from each stationary combustion unit on site by following the requirements of 40 CFR part 98, subpart C (General Stationary Fuel Combustion Sources). Please refer to the relevant information sheet for a summary of the proposal for calculating and reporting emissions from any other source categories at the facility.

How Would GHG Emissions Be Calculated?

For the sources listed below, the proposal calls for facilities to conduct annual leak detection of natural gas fugitive emissions using an infrared remote detection device, organic vapor analyzer, or toxic vapor analyzer. For each individual source for which a leak is detected, the facility then would measure volumetric fugitive emissions using a high-volume sampler. Where a high-volume sampler cannot capture all fugitive emissions, the facility would measure using calibrated bagging, rotameters, turbine meters, or other meters, depending on the individual component. Then, mass emissions of CO_2 and CH_4 would be estimated based on the annual mole percentage and density of each GHG.

- Centrifugal compressor dry seals fugitive emissions.
- Centrifugal compressor wet seals fugitive emissions, including all stack methane emissions from sources such as, but not limited to, the wet seal degas.
- Compressor fugitive emissions.
- LNG import and export facility fugitive emissions.
- LNG storage station fugitive emissions.
- Non-pneumatic pumps fugitive emissions.
- Open-ended lines fugitive emissions.
- Pump seals fugitive emissions.
- Offshore platform pipeline fugitive emissions.

- Platform fugitive emissions.
- Processing facility fugitive emissions.
- Reciprocating compressor rod packing fugitive emissions, including all stack emission methane emissions resulting from reciprocating engine operation.
- Storage station fugitive emissions.
- Transmission station fugitive emissions.
- Storage wellhead fugitive emissions.

For the sources listed below, the proposal calls for facilities to conduct annual leak detection of natural gas fugitive emissions using an infrared remote detection device, organic vapor analyzer, or toxic vapor analyzer. For each individual source for which a leak is detected, the facility then would estimate CO_2 and CH_4 emissions using direct measurement or an engineering calculation method specified in the rule. The engineering calculation methods use monitored process operating parameters and, depending on the source, either simulation models or emission factors provided by the equipment manufacturer.

- Acid gas removal vent stacks.
- Natural gas-driven pneumatic pumps.
- Natural gas-driven pneumatic manual valve actuator devices.
- Natural gas-driven pneumatic valve bleed devices.
- Blowdown vent stacks.
- Dehydrator vent stacks.
- Flare stacks.*
- Storage tanks.*
- Compressor wet seal degassing vents.*

*A combination of engineering estimation and direct measurement would be used to calculate emissions from these fugitive emissions sources.

What Information Would Be Reported?

In addition to the information required by the General Provisions 40 CFR 98.3(c), the proposal calls for facilities to report the following information:

- Annual CO_2 and CH_4 emissions reported separately for each of these operations:
  - Offshore petroleum and natural gas production
  - Onshore natural gas processing
  - Onshore natural gas transmission compression
  - Underground natural gas storage
  - LNG gas storage
  - LNG import and export
- Within each operation, CO_2 and CH_4 emissions would be aggregated for each source type (i.e., the 24 source types listed above). For example, an onshore natural gas processing plant would report emissions for all pump seals combined, flare stacks combined, etc.
- Emissions would be reported separately for equipment in standby mode.
- Equipment counts aggregated for each of the 24 source types listed previously.
- Engineering estimate of total component count.
- Total number of compressors and average operating hours per year for compressors, if applicable.
- Minimum, maximum, and average throughput for each facility.
- Specification of the type of any control device used, including flares, on the 24 source types listed above.
- For offshore petroleum and natural gas production facilities, the number of connected wells, and whether they are producing oil, gas, or both.
- Detection and measurement instruments used.

For More Information

This series of information sheets is intended to assist reporting facilities/owners in understanding key provisions of the proposed rule. However, these information sheets are not intended to be a substitution for the rule. Visit EPA's Web site

This document was developed for the *Proposed* Mandatory GHG Reporting Rule. For the final document, please visit the *final* Mandatory Reporting of Greenhouse Gases Rule.

(www.epa.gov/climatechange/emissions/ghgrulemaking.html) for more information, including the proposed preamble and rule and additional information sheets on specific industries, or go to <www.regulations.gov> to access the rulemaking docket (EPA-HQ OAR-2008-0508). For questions that cannot be answered through the Web site or docket, call 1-877-GHG-1188.